RENEWABLE ENERGY PROGRAM
CALIFORNIA ENERGY COMMISSION

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Producing Your Own Electric Power

The quietest power generator available today has no moving parts, requires no maintenance, produces no pollution, and costs nothing to run. Known as photovoltaics, these rooftop systems provide their owners with power generated from the sun as well as energy savings on their electric bills. Though initially expensive, the systems start to recover their installation costs from day one, an appealing factor to homeowners in California's volatile electric market. Before you install, here are some questions to ask:

How do photovoltaics work? Panels containing a grouping of photovoltaic cells are clustered together in an "array." The cells, made of chemically treated silicon similar to computer chips, are covered with glass or other transparent material. All photovoltaics create direct current (DC) power from sunlight, which must be converted to alternating current (AC) with the aid of an inverter before it's used.

Do I need a battery back-up? Most systems are "grid tied," that is they feed your extra electricity back to the state's power grid where it's stored until needed. So a battery back-up isn't necessary.

What size system is right for me? System sizes range from around 100 watts (roughly one panel) to whatever your pocketbook and rooftop space allow. However, a good rule of thumb is to look at your electric bill, and monitor your baseline usage. You pay a premium for energy used above the baseline—so at a minimum, size your system to provide what you're using above the baseline rate.

Does my roof get enough sunlight for solar? The more access your system has to the sun, the greater its effectiveness. The less direct sunlight your system receives, the larger the system you'll need. So, in addition to finding the sunniest location for your panels, also consider your roof orientation—south-facing systems work best.

Will I have to install a special electric meter? Most utility customers have bi-directional meters capable of going forward or backward. With a photovoltaic system

your meter measures the difference between the electricity you buy from the utility and what you generate, also called “net metering.” When you produce more power than you need—typically the middle of the day when the sun’s the brightest and you’re not using much power—your meter runs backward. At night, you purchase back the power that you generated earlier in the day.

What is “Time of Use” metering? Net metering allows “time of use” agreements where consumers pay less for electricity used in off-peak times, and more for electricity used at peak usage times. This means extra savings for you if you produce more electricity than you need during peak demand, like weekdays from noon to 6 p.m. during the summer months, and most of your electricity use occurs during off-peak hours such as early mornings and evenings. Essentially you are selling your excess electricity at peak-usage rates, and purchasing it back at a lower rate.

Are there rebates available and how do I get them? The California Energy Commission is offering rebates of $4.50 per watt ($4,500 per kilowatt), or up to 50 percent of the system installation cost, whichever is less. Consult with a qualified installer to determine the size and site for your system, and reserve the rebate funds in advance of the installation.

How do I find a qualified installer? Visit the California Energy Commission’s website www.consumerenergycenter.org, and click on “retailers.” Ask for references when interviewing installers, and make sure your installer is familiar with the zoning laws in your area.

For more information about photovoltaics, qualified products, or to reserve your rebate funds, call the California Energy Commission at 800-555-7794.

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